

ABSTRACT

A method for forming a gate electrode in the semiconductor device is disclosed. The disclosed methods for forming a gate electrode in a semiconductor includes forming a polysilicon film and a metal silicide film sequentially on an upper portion of a semiconductor substrate; performing an annealing process to crystallize the metal silicide film, so that etch rate of the crystallized metal silicide film is similar to that of the polysilicon film; and forming a gate electrode by performing an etching process at one time on the metal silicide film and the polysilicon film using the similar etch rates of the crystallized metal silicide film and the polysilicon film. According to the disclosed methods, the tungsten silicide film is crystallized by an annealing process and the polysilicon film and the crystallized tungsten silicide film are etched at one time to prevent any formation of recesses of the polysilicon film, so that it is possible to form the gate electrode pattern having the vertical profile.